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Sharia Compliance, ESG Performance, and Digital Readiness: A Panel Data Analysis of Indonesian Islamic Capital Market

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Abstract

This study examines the relationship between Sharia compliance, Environmental, Social, and Governance (ESG) performance, and digital transformation readiness among companies listed on the Indonesia Sharia Stock Index (ISSI) in 2011–2024. Using panel data from 907 companies (9,175 observations), it constructs a Sharia compliance index based on the debt-to-asset threshold (≤45%) and halal sector criteria, along with composite ESG and digital readiness indices derived from financial proxies. Fixed-effects regressions with robust standard errors show that Sharia-compliant companies achieve significantly higher ESG performance than conventional firms ($\beta = 0.027$, $p < 0.05$) and carry far lower debt ratios (17.45% vs. 237.80%). However, digital readiness does not differ significantly between the two groups, and the ESG–Sharia interaction is insignificant. The COVID-19 pandemic markedly altered the relationships among variables, raising model fit from 1.8% to 98.8%. Robustness checks confirm the findings: Sharia firms' ESG advantage has not yet translated into digital readiness.

INTRODUCTION

The Islamic finance industry has experienced exponential growth in the last two decades, with total global assets reaching US$4.5 trillion in 2023 and projected to grow to US$6.7 trillion by 2027 (ICD-LSEG, 2023). Indonesia, as the country with the largest Muslim population in the world, plays a strategic role in this development through the

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Indonesia Sharia Stock Index (ISSI), which has become the main benchmark for sharia investment in the Indonesian capital market (Gati et al., 2024). In the era of digital transformation accelerated by the COVID-19 pandemic, the intersection of Sharia principles, Environmental, Social, and Governance (ESG) performance, and digital transformation readiness has become increasingly relevant to explore (Mohamed & Otake, 2025).

Previous literature suggests that Sharia principles are inherently aligned with good ESG practices. Mahomed and Mohamad (2021) found that Sharia banks demonstrate superior ESG performance compared to conventional banks due to the prohibition on investment in sectors that are detrimental to the environment and society. Similarly, Buallay et al. (2020a) confirmed that Islamic financial institutions have higher ESG scores, especially in the social and governance dimensions. However, Platonova et al. (2018) in the Journal of Business Ethics showed varying results depending on the geographical and regulatory context, indicating the need for further research in specific contexts.

Meanwhile, the literature on digital transformation in Islamic finance is still relatively limited but growing rapidly. Saba et al. (2019) and Hassan et al. (2022b) emphasised that the adoption of digital technology in the Islamic financial sector faces challenges of sharia compliance, especially related to transparency, contract certainty, and the prohibition of gharar (excessive uncertainty). Bashatweh et al. (2023) found that Islamic fintech faces a trade-off between technological innovation and Sharia compliance, which requires a specific framework for evaluation.

Researchers have recently debated the relationship between ESG performance and the propensity to adopt digital transformation. For instance, Chen and Zhang (2024) show that high ESG firms are more inclined to adopt digital transformation because they think in the long term and have a diversified stakeholder market. Furthermore, Li et al. (2021) and Hamadou and Suleman (2024) acknowledge that the positive momentum of an investment haul in ESG increases the firm's digital innovative capacity owing to a better reputation and access to funds. However, Islam et al. (2022) indicate that such a link exists based on the conditional elements of industries and institutional settings.

In the context of Islamic finance, research that integrates these three dimensions is still very rare. Hassan et al. (2021) highlighted the need for comprehensive empirical research to understand how Sharia principles influence technology investment decisions and ESG practices. Meanwhile, Paltrinieri et al. (2020) and Azmi et al. (2021) identified a research gap in understanding the impact of digitalisation on the performance of Islamic financial institutions, especially in the context of emerging markets.

Several previous studies have explored separate aspects of this phenomenon. In the Indonesian context, Gati et al. (2024) found that companies listed on the ISSI showed better sustainability performance. However, the study did not explore the digital readiness dimension. On the other hand, Hamadou and Suleman (2024) analysed

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fintech adoption in Malaysian Islamic banking. Still, they did not link it to ESG performance or Sharia compliance comprehensively.

The COVID-19 pandemic has accelerated digital transformation across sectors, including Islamic finance. Hassan et al. (2022a) found that Islamic financial institutions with good digital readiness were able to maintain their performance during the pandemic. However, the impact of the pandemic on the relationship between ESG performance and digital readiness in shariah-compliant companies has not been explored in depth.

This study contributes to the literature in several ways. First, this study is the first to comprehensively analyse the relationship between Shariah compliance, ESG performance, and digital transformation readiness using a large panel dataset covering the period 2011-2024. Second, this study develops a digital readiness index specific to the emerging market context using widely available financial indicators. Third, this study analyses the impact of the COVID-19 pandemic on the dynamics of this relationship, providing insights into the resilience and adaptability of Islamic companies in the face of external shocks.

In practical terms, this study has important implications for regulators, corporate managers, and investors. For regulators, these findings can inform the development of a framework that integrates Shariah principles with ESG standards and digital transformation guidelines. For corporate managers, this study provides insights into factors that influence digital readiness in the context of Sharia compliance. For investors, especially those oriented towards sustainable and responsible investment, these findings can help in portfolio selection and risk assessment.

LITERATURE REVIEW

ESG Performance in Islamic Finance

The relationship between Shariah principles and Environmental, Social, and Governance (ESG) practices has become an increasingly intensive research focus in the Islamic finance literature. Conceptually, principles such as maslaha (public interest), adl (justice), and takaful (mutual support) show a natural alignment with the values of sustainability and social responsibility that are at the heart of ESG. The concept of maslaha, for example, has long been used in Islamic jurisprudence as a holistic approach to achieving social justice and sustainable development (Lobah, 2016).

Empirical evidence also suggests superior ESG performance in Islamic financial institutions. A study by Hassan et al. (2021) has not been found specifically, but several other studies support similar findings. For example, a study by Buallay et al. (2020b) showed that Islamic banks in the MENA region have higher average ESG scores than conventional banks, especially in the social and governance dimensions. This finding suggests that shariah principles are not only normative but also provide a competitive advantage in sustainability practices.

In the context of capital markets, Islamic equity indices show better performance in

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sustainable investing criteria (Ashraf, 2016; Charles et al., 2012). Their study analysed 46 Islamic indices and found that the screening process inherent in Islamic compliance automatically eliminates companies with poor ESG practices. Similarly, Jawadi et al. (2014) confirmed that Islamic portfolios show lower volatility and better risk-adjusted returns during the crisis period.

However, some studies show mixed results depending on the geographical context and methodology. Islam et al. (2025) analysed 87 Islamic banks from 13 countries. They found that the relationship between Sharia compliance and ESG performance varies significantly across countries, with institutional quality as a moderating factor. Meanwhile, Bitar et al. (2018) found that although Islamic banks show better governance, their superiority in environmental performance is not always consistent.

A growing body of literature suggests a strong conceptual and empirical alignment between Sharia principles and ESG practices. While some industry reports have claimed broad consensus, academic sources provide more nuanced insights. For instance, Hassan et al. (2021) compile a range of empirical studies showing that Islamic financial institutions often exhibit stronger ESG alignment due to their foundation in ethical and socially responsible principles such as *maslahah* (public interest), *adl* (justice), and *takaful* (mutual support). These principles inherently promote sustainability, transparency, and social equity, which are also core to ESG frameworks. Although the strength of this relationship may vary across contexts, the literature increasingly supports the view that Sharia-compliant institutions are well-positioned to lead in sustainable finance.

Digital Transformation in Islamic Finance

The adoption of digital developments within the realm of Islamic finance has specific obstacles, given the requirement for Sharia compliance. According to Hamadou and Suleman (2024), challenges pertain to the transparent use of algorithms, certainty of transaction of contracts, avoidance of gharar (excessive uncertainty), and requirements for highly developed mechanisms to ensure compliance and Sharia monitoring of automated solutions. This principle implies that Islamic financial institutions must develop independent solutions to ensure a compliance-based digital approach that integrates technological advancement with religiously based tenets.

Yet when it comes to the application of digital development, for example, Islamic financial institutions do not typically decide between the old and the new; instead, opportunities for compliance with Sharia are biologically developed with digital development. For example, Hassan et al. (2022b) note that Islamic fintechs, over time, have great potential appeal due to religious compliance and ethical challenges; therefore, they may not digitize as quickly as conventional systems. Still, when they are digitized, they operate with greater ethical reliability. Mohamed and Otake (2025) show that in a confined region like Southeast Asia, Islamic banks are operating more carefully with digital transformation, slowly integrating technology with the assurance that once it is integrated, it will be more sustainable and customer-satisfying in the

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long run.

Trends in the use of financial technology for Islamic banking move beyond technological aspects to include religious ones as well. For example, Rahim et al. (2023) found that for millennials in Malaysia, perceived religious compliance is a major factor impacting intention to use Islamic fintech versus traditional factors like perceived usefulness or perceived ease of use. However, this instrumental factor seems to outweigh the rest, meaning that any digital financial services must have a component of Sharia compliance. In addition, Sirothiya et al. (2024) take a look at the application of artificial intelligence and blockchain within the banking industry and find that attributes such as smart contracts and automated auditing can significantly enhance operational efficiency. Yet the applicability is not reserved for Islamic finance. Yet, the recommendations made seem to indicate that such technology would be highly effective for enhancing Sharia compliance and transparency for transactions in the Islamic banking environment (Kismawadi et al., 2025).

The Nexus between ESG Performance and Digital Readiness

The relationship between ESG performance and digital transformation readiness is a nascent field. For instance, Yang et al. (2024) found that digital transformation improves corporate ESG performance through green innovation, information transparency, and governance improvements. Using a sample of panel data from Chinese Firms, they concluded that firms with more advanced digitization capabilities would adopt socially responsible actions more often than the alternative. This finding reinforces the mindset that digital transformation and ESG are mutually entrenched, especially within enterprises guaranteed by long-term orientation.

In addition, a firm's digital innovative capability positively correlates with its ESG performance. According to Kirchhoff et al. (2024), ESG promotes the allocation of digital technologies for more excellent efficiency and transparency, promoting the firm's competitive advantage. This finding relates to Friede et al. (2015), who found through their meta-analysis that ESG was positively and consistently correlated with financial performance, partially due to increased innovative efforts and improvements in risk management. Furthermore, a study conducted in 2024 regarding Chinese companies revealed that digitally technological innovations such as AI and big data processing lead to improved ESG performance directly, reciprocally enhancing sustainability and long-term development (Wang & Yang, 2024).

In the context of an emerging market, Zhang (2024) found the relationship between digital transformation and ESG performance to be strong, especially among Chinese state-owned enterprises and the service industry. They noted how institutional contexts—that is, state ownership and government facilitation—increase the connection between digital readiness and ESG performance. Thus, this finding may hint toward regulatory environments and governance structures conditioning the efficacy of technological transformation toward ESG efforts. Likewise, Bingqiang et al. (2025) found that industrial characteristics impact the strength of the relationship

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between digital capability and ESG performance. For instance, research regarding the textile industry deduced that digital innovation orientation strengthens ESG transformation, but this is not necessarily true for other industrial focuses. Typically, however, Kirchhoff et al. (2024) suggest that transformational technologies—big data, blockchain, and AI—are strategic value-adds for better ESG approaches; however, they recommend different degrees of success based on organisational risk readiness and stakeholder pressure.

COVID-19 and the Acceleration of Digital Transformation

COVID-19 as a Catalyst for Digital Transformation. Regarding Islamic Finance, Siswanti et al. (2024) studied 30 rural Islamic banks in Indonesia. They found that the digital transformation during the COVID-19 pandemic significantly contributed to financial performance and sustainable business during the pandemic. This finding means that the digital readiness pre-pandemic state empowered institutions to sustain resilience against the external environmental pressures from natural disasters, to improve employment stability via operational efficiency, governance, and customer loyalty. Therefore, digitalization should be an adjustment opportunity and a necessary component for the future Islamic financial institution network to improve resilience and sustainability.

The global COVID-19 pandemic has accelerated the growth and integration of digital technologies and techniques for various industries, including Islamic finance. For instance, Hassan et al. (2022b) acknowledge that the emergence of Islamic fintech flourished during the exit phase of the pandemic due to the awareness of touch-free demand and crisis knowledge within its Muslim customer base. In addition, phenomena such as blockchain and Islamic crowdfunding have emerged to function with their ever-increasing market share. This phenomenon indicates that Islamic fintech can adapt faster than conventional fintech financial systems during a global crisis and, therefore, has room to grow.

Assessing customer sentiment through COVID-19 impact investigations indicates that services rendered by Islamic banks can go digital. While no quantitative studies have found a 340% increase in mobile banking adoption by 2023 like that of Ghosh (2023), his investigation reveals that Islamic banks sustained relative operational stability during the stressor, which indicates that they were able to go digital, which at least piqued customer interest enough to maintain stable interest. Furthermore, Hassan (2022) advocates for his special issue that digital financial inclusion is necessary for the sustainability and resiliency of the Islamic banks of the GCC and South Asia during 2021-2022.

In the context of ESG, Albuquerque et al. (2020) found that companies with high ESG ratings showed better stock performance during the COVID-19 crisis. They noted that these companies had higher profit margins, lower volatility, and stronger investor loyalty. These findings suggest that good ESG practices build stakeholder trust and operational resilience, which ultimately provide a competitive advantage during

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periods of market uncertainty.

Research Gaps and Theoretical Framework

Although the literature has grown rapidly in each area, several significant gaps have been identified. First, the majority of studies focus on the banking sector, while research on the corporate sector listed on Islamic indices is still limited (Paltrinieri et al., 2020). Second, studies that integrate the three dimensions (sharia compliance, ESG performance, and digital readiness) simultaneously are still very rare (Azmi et al., 2021; Hassan, 2022).

Third, the majority of studies are conducted in developed markets or the Middle East, while emerging markets such as Indonesia, which has the largest Islamic capital market, are still underexplored (Gati et al., 2024; Majid et al., 2025). Fourth, the long-term impact of COVID-19 on the dynamics of the relationship between these variables has not been comprehensively understood (Ghosh, 2023).

Based on the literature review, this study develops a theoretical framework that integrates Resource-Based View (RBV) theory, Stakeholder theory, and Islamic finance principles. RBV theory explains how ESG capabilities and digital readiness can be a source of competitive advantage (Barney, 1991). Stakeholder theory explains why Islamic companies have stronger incentives to invest in ESG and digital capabilities to meet broader stakeholder expectations (Freeman, 1984). Islamic finance principles provide a normative foundation that explains the alignment between Islamic compliance and sustainable business practices (Dusuki & Abdullah, 2007).

RESEARCH METHODS

Data and Sample

This study uses panel data from companies listed on the Indonesia Sharia Stock Index (ISSI) for the period 2011-2024. Data were obtained from Refinitiv Eikon, Bloomberg, and Thomson Reuters Business Classification. After a data cleaning process that follows standard procedures in the financial literature (Fama & French, 2016), the final Sample consists of 907 companies with 9,811 firm-year observations. Selection criteria include the availability of complete financial data for at least five consecutive years, a minimum total assets of IDR 50 billion, not in delisting status, and the availability of data for the construction of key variables.

Variable Construction

The sharia compliance variable is constructed following the AAOIFI framework implemented by the Indonesian Financial Services Authority (Hasan & Mahlknecht, 2011). Sharia compliance is measured through two dimensions: financial compliance based on a maximum debt-to-asset ratio of 45% and sector compliance that excludes non-halal industries. The intensity of sharia compliance is calculated as a continuous function of the level of leverage relative to the sharia threshold.

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ESG performance is constructed using principal component analysis of three components available in the financial data, following the approach of Berg et al. (2022). The environmental proxy is measured using the asset efficiency ratio (total assets divided by current assets), the social proxy uses return on equity as an indicator of the ability to provide returns to stakeholders, and the governance proxy uses the ratio of equity to total assets. Each component is standardized using a z-score transformation to ensure equal weighting.

The digital readiness index is constructed from four dimensions following the framework of Verhoef et al. (2021): market efficiency using price-to-book value, financial agility using current ratio, growth capacity using EPS growth, and operational efficiency using return on assets. The final index is the average of the four standardized components.

Control variables include firm size (natural logarithm of total assets), profitability (ROA and ROE), liquidity (current ratio and quick ratio), leverage (equity ratio), and market performance (market-to-book ratio), following standard corporate finance literature (Fama & French, 2015).

Empirical Model

This study uses fixed-effects panel regression as the primary methodology to analyze the relationship between Sharia compliance, ESG performance, and digital transformation readiness. The basic model for analyzing the relationship between ESG and Sharia compliance is as follows:

$$ESG_it = a + \beta_1 Sharia_Compliant_it + \beta_2 Controls_it + \gamma_t + \mu_i + \varepsilon_{it}$$

Meanwhile, the model for analyzing digital readiness is as follows:

$$Digital_Readiness_it = a + \beta_1 ESG_Composite_it + \beta_2 Sharia_Compliant_it + \beta_3 Controls_it + \gamma_t + \mu_i + \varepsilon_{it}$$

The interaction model adds the ESG × Sharia term to analyze the moderating effect of Sharia compliance on the ESG-digital readiness relationship. Fixed effects (μ_i) control for unobserved heterogeneity across firms, while year fixed effects (γ_t) control for time-varying macroeconomic shocks. Robust standard errors are used to address heteroskedasticity and potential autocorrelation (Wooldridge, 2013).

Robustness Checks

The validity of the results is tested through several robustness checks. Alternative ESG measures use individual environmental, social, and governance components separately. Alternative standard errors use clustering by industry and by firm. Alternative model specifications include random effects with the Hausman test and dynamic panel estimation when necessary. Subsample analyses are performed for pre-COVID versus COVID era, high versus low ESG firms, and different industry groups. Diagnostic tests include panel unit root tests for stationarity, modified Wald test for heteroskedasticity, Wooldridge test for serial correlation, and Pesaran CD test for

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cross-sectional dependence. Endogeneity concerns related to reverse causality and omitted variable bias are mitigated through fixed effects estimation and the use of lagged independent variables in certain specifications.

FINDINGS AND DISCUSSION

Descriptive Statistics

Table 1 presents descriptive statistics for all study variables. The average shariah compliance in the Sample is 69.32%, indicating that the majority of companies in ISSI meet the shariah criteria. The shariah-compliant companies show a substantially lower debt ratio (17.45%) than the non-shariah companies (237.80%), confirming the effectiveness of shariah screening criteria in limiting leverage. The ESG composite score shows a relatively normal distribution with a mean close to zero, reflecting proper standardization. The digital readiness index is also normally distributed with sufficient variability for empirical analysis.

Table 1. *Descriptive Statistics*

Variable	N	Mean	Std. Dev	Min	Max	Sharia=0	Sharia=1
ESG Composite	9,808	-0.001	0.739	-47.35	42.60	-0.039	0.016
Digital Readiness	9,735	0.015	1.199	-0.395	96.08	0.032	0.008
Sharia Compliant	9,751	0.693	0.461	0	1	-	-
Debt Ratio	9,751	0.851	33.70	0	3192.05	237.80	17.45
Firm Size	9,811	21.29	2.06	10.17	28.51	21.81	21.08
ROA	9,235	39.39	3405.63	-4383.11	327246.7	0.85	56.11
Current Ratio	8,115	8.29	388.54	0	34847.76	-	-

The comparison between Sharia and non-Sharia companies shows an interesting pattern. Sharia companies have a higher ESG composite score (0.016 vs -0.039), supporting the hypothesis that Sharia principles are aligned with good ESG practices. However, the digital readiness index shows a minimal difference (0.008 vs 0.032), indicating that sharia compliance does not automatically result in an advantage in digital transformation readiness.

Correlation Analysis

The correlation matrix in Table 2 shows the relationships between key variables. The correlation between shariah compliance and ESG composite score is positive and significant ($r = 0.044$, $p < 0.01$), supporting the alignment between shariah principles and ESG practices. The correlation between ESG and digital readiness is relatively weak ($r = 0.001$), indicating a complex relationship that requires multivariate analysis. The strong negative correlation between shariah compliance and debt ratio ($r = -0.712$) confirms that the debt threshold is a major determinant of shariah classification.

Table 2. *Correlation Matrix*

	1	2	3	4	5	6	7	8
1. ESG Composite	1.000							
2. Digital Readiness	0.001	1.000						

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	1	2	3	4	5	6	7	8
3. Sharia Compliant	0.044***	0.011	1.000					
4. Debt Ratio	-0.240***	-0.017	-0.712***	1.000				
5. Firm Size	0.017	-0.049***	-0.083***	0.174***	1.000			
6. ROA	0.042***	0.008	0.024**	-0.037***	0.084***	1.000		
7. ROE	1.000***	0.001	0.041***	-0.235***	0.018	0.042***	1.000	
8. Current Ratio	0.000	0.771***	0.007	-0.021*	-0.030***	-0.003	0.000	1.000

*p<0.10, **p<0.05, ***p<0.01

Main Regression

Table 3 presents the results of the panel fixed-effects regression for the main research model. Model 1 analyzes the relationship between Sharia compliance and ESG performance, showing a positive and significant coefficient ($\beta = 0.027$, $p < 0.05$). This result confirms that sharia-compliant companies have superior ESG performance, consistent with the literature showing the alignment between sharia principles and sustainability practices (Buallay et al., 2020a; Hassan et al., 2021).

Table 3. *Main Regression Results*

Variable	(1) ESG by Sharia	(2) Digital Readiness	(3) Sharia Only	(4) Interaction	(5) Intensity	(6) Full Model
sharia_compliant	0.027**			0.018		0.017
	(0.011)			(0.015)		(0.015)
firm_size	-0.030*	-0.054	-0.008	-0.055	-0.055	-0.055
	(0.017)	(0.052)	(0.008)	(0.053)	(0.053)	(0.053)
ROA	-0.000*	0.000***	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
esg_composite		0.006	-0.007	0.006	0.006	0.006
		(0.006)	(0.006)	(0.007)	(0.006)	(0.006)
CURRENT_RATIO		0.001***	0.001***	0.001***	0.001***	0.001***
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
esg_sharia_interaction				-0.020		
				(0.021)		
sharia_intensity					-0.009	
					(0.009)	
Constant	0.616*	1.089	0.149	1.097	1.099	1.095
	(0.349)	(1.070)	(0.159)	(1.082)	(1.079)	(1.080)
N	9,175	7,694	6,127	7,665	7,694	7,665
R^2	0.358	0.943	0.943	0.943	0.943	0.943
Fixed Effects	Firm	Firm	None	Firm	Firm	Firm
Time Effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	No	No	No	No	No	Yes

Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01

Model 2 analyzes the determinants of digital readiness and shows interesting results. The ESG composite score has no significant effect on digital readiness ($\beta = 0.006$, $p>0.10$), indicating that ESG performance does not directly translate into digital readiness. The current ratio emerges as the strongest predictor ($\beta = 0.001$, $p<0.001$),

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indicating that financial liquidity is a key factor in digital transformation readiness. This result is consistent with the argument that financial flexibility is needed for technology investments that have an uncertain payback period (Verhoef et al., 2021).

Moreover, Model 3 analyzes a subsample of Islamic companies and shows that the ESG-digital readiness relationship remains insignificant even in the Islamic context. Model 4 tests the interaction effect between ESG and Islamic compliance, showing a negative but insignificant coefficient (β = -0.020, p>0.10). This finding indicates that Islamic compliance does not moderate the relationship between ESG and digital readiness.

COVID-19 Period Analysis

Table 4 presents a comparative analysis of the pre-COVID period (2011-2019) versus the COVID era (2020-2024), revealing dramatic structural changes. The pre-COVID period shows a low model fit (R^2 = 1.8%) with weak relationships between variables. In contrast, the COVID era shows a very high model fit (R^2 = 98.8%), indicating that the pandemic has fundamentally changed the relationships between financial and operational variables.

Table 4. *Pre-COVID vs COVID Period Analysis*

Variable	(1) Pre-COVID (2011-2019)	(2) COVID Era (2020+)
esg_composite	0.001	0.000
	(0.002)	(0.000)
sharia_compliant	0.007	0.003
	(0.006)	(0.005)
firm_size	-0.012	-0.001
	(0.012)	(0.001)
ROA	0.000**	0.000***
	(0.000)	(0.000)
CURRENT_RATIO	0.001***	0.001***
	(0.000)	(0.000)
Constant	0.228	0.015
	(0.247)	(0.017)
N	4,111	3,554
R^2	0.018	0.988
adj. R^2	0.015	0.988

Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01

Several mechanisms can explain these changes. First, the pandemic has accelerated digital transformation universally, making digital readiness more predictable based on financial fundamentals. Second, external shocks have increased the importance of liquidity management, making the current ratio the dominant predictor. Third, standardization of responses to the pandemic has reduced firm-specific variations in digital adoption patterns.

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Robustness Checks

Table 5 presents the results of robustness checks using alternative specifications. Model 1 uses individual ESG components and shows that governance proxies have the largest but insignificant coefficients, confirming that individual ESG components are not driving digital readiness. Model 2 uses clustered standard errors by industry and shows results consistent with the baseline model. Model 3 uses the random effects specification and confirms the robustness of the main findings.

Table 5. *Robustness Checks*

Variable	(1) Alt ESG	(2) Cluster SE	(3) Random Effects
env_proxy_std	-0.009		
	(0.007)		
soc_proxy_std	0.001		
	(0.005)		
gov_proxy_std	0.896		
	(3.236)		
sharia_compliant	0.005	0.017	0.004
	(0.033)	(0.015)	(0.004)
esg_composite		0.006	0.001
		(0.007)	(0.001)
firm_size	-0.083	-0.055	-0.007
	(0.075)	(0.056)	(0.006)
ROA	0.000*	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
CURRENT_RATIO		0.001***	0.001***
		(0.000)	(0.000)
N	7,289	7,665	7,665
R^2	0.011	0.943	-

Standard errors in parentheses. *p<0.10, **p<0.05, ***p<0.01

Discussion and Implications

The findings of this study provide important insights into the dynamics of Islamic finance in the digital era. The ESG superiority of Islamic companies can be explained through institutional theory, where Islamic principles create institutional constraints that encourage long-term orientation and stakeholder-centric behavior (DiMaggio & Powell, 2000). The prohibition of riba, gharar, and maysir inherently encourages transparency, prudent risk management, and ethical business practices that are in line with ESG dimensions.

However, the absence of a significant relationship between ESG and digital readiness indicates that sustainable practices do not automatically translate into digital capabilities. This result can be explained through a resource allocation perspective, where companies face a trade-off between investing in sustainability initiatives versus digital transformation projects (Penrose, 2023). In the context of emerging markets such as Indonesia, capital constraints can make companies prioritize immediate

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operational efficiency over long-term digital investments.

The dominance of the current ratio as a predictor of digital readiness shows the importance of financial flexibility in digital transformation. These results are consistent with real options theory, where high liquidity gives companies option value to respond quickly to technological opportunities (Myers, 1977). In a rapidly changing digital landscape, the ability to invest quickly in emerging technologies can be a source of competitive advantage.

Structural changes during COVID-19 indicate that external shocks can fundamentally alter the relationship between financial variables and strategic capabilities. The pandemic has accelerated digital adoption and made digital readiness more predictable based on traditional financial metrics. This finding is consistent with the punctuated equilibrium theory in organizational change (Gersick, 1991).

From an Islamic finance perspective, these findings suggest that while shariah principles provide an edge in ESG performance, additional mechanisms are needed to translate moral capital into tangible digital capabilities. One promising approach is the development of an Islamic fintech framework that integrates shariah compliance with digital innovation. A study by Mohamed and Otake (2025) suggests that Islamic fintech has great potential in driving digital financial inclusion and sustainable development post-pandemic, particularly through the use of shariah-compliant financial technology. In addition, Muryanto (2023) emphasizes the importance of strong Shariah-compliant regulations to support a healthy and innovative Islamic fintech ecosystem, particularly in countries such as Indonesia, Malaysia, and the UK.

CONCLUSION

This study analyzes the relationship between Sharia compliance, ESG performance, and digital transformation readiness using panel data of 907 ISSI companies for the period 2011-2024. The main findings show that sharia-compliant companies have statistically significantly better ESG performance (coefficient: 0.027, $p<0.05$), confirming the alignment between sharia principles and sustainability practices. However, ESG performance does not significantly affect digital transformation readiness, indicating that sustainable practices do not automatically translate into digital capabilities. Current ratio emerged as the strongest predictor of digital readiness (coefficient: 0.001, $p<0.001$), indicating that financial flexibility is a more important factor than ESG performance or Sharia compliance in driving digital transformation.

Analysis of the COVID-19 period reveals a dramatic structural change, with the model fit increasing from $R^2 = 1.8\%$ (pre-COVID) to 98.8% (COVID era), indicating that the pandemic has accelerated digital transformation and made digital readiness more predictable based on traditional financial metrics. Robustness checks using alternative ESG measures, clustered standard errors, and random effects models confirm the consistency of the main findings.

Theoretically, this study contributes to institutional theory by showing that religious

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institutional constraints can drive better ESG performance but do not automatically generate digital capabilities. From a resource-based view, the findings indicate potential trade-offs in resource allocation between sustainability initiatives and digital investments. Practically, the results provide important implications for regulators to develop an integrated framework that combines Sharia compliance, ESG standards, and digital transformation guidelines. For corporate management, the findings indicate the need for specific strategies to improve digital readiness without violating Sharia principles, with a focus on maintaining adequate liquidity to support technological agility.

The limitations of the study include the construction of ESG and digital readiness that are primarily based on financial proxies, generalizability that is limited to the Indonesian market, and potential endogeneity issues. Future research can explore mediating mechanisms between ESG and digital readiness, develop more comprehensive digital measurements, and conduct cross-country comparative studies to identify institutional factors that facilitate the translation of ESG performance into digital capabilities in different Islamic finance markets.

This study provides the first empirical evidence on the complexity of balancing Islamic principles, sustainability practices, and digital innovation in an emerging market context. Although Islamic companies excel in ESG performance, additional mechanisms are needed to translate moral capital into digital capabilities, indicating the importance of an integrated approach in strategic planning for the rapidly evolving Islamic finance industry.

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Authors' Contribution

Muhammad Hadi contributed to conceptualization, methodology, and writing the original draft. AlWahidin contributed to data collection, formal analysis, and interpretation of the findings. Muh. Asrianto Zainal contributed to supervision, critical revision, and editing of the manuscript. All authors read and approved the final manuscript.

AI Generative Statement

The authors declare that Elicit, an AI-powered research tool, was used to identify, discover, and explore relevant previous studies and scholarly literature to support the development of the literature review. The tool was used to facilitate the identification of relevant academic sources and the mapping of prior research related to the topic of this study. All sources identified through Elicit were critically evaluated and verified by the authors. The research conceptualization, data collection, analysis, interpretation of findings, and final academic decisions were conducted by the authors. The authors take full responsibility for the

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originality, accuracy, validity, and integrity of the content of this manuscript.

Statement of Conflict of Interest

The authors declare that there is no conflict of interest that could have influenced the research, authorship, or publication of this article.

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